In the Claims

Please cancel claim 32 without prejudice or disclaimer.

Please substitute claims 1-3, 7, 16, 25, 30, 31 and 34 below for the pending claims with the same numbers. A marked-up version of prior pending claims 1-3, 7, 16, 25, 30, 31 and 34 with all changes made by the current amendment shown using bracketing and underlining is attached hereto as the pages captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**."

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1. (Amended) A system for calibrating light output by a light-emitting diode (LED), the system comprising:

a housing to which an LED to be calibrated may be positioned therein;

a photosensor disposed in the housing for obtaining an output measurement generated by the LED;

a processor in communication with the photosensor and the LED, the processor configured to formulate a calibration value based on a comparison of the output measurement and a reference value, such that during a subsequent generation of light output, the calibration value permits the subsequent light output to have a calibrated intensity; and

a memory mechanism in association with the LED to store the calibration value.

2. (Amended) A system as set forth in claim 1, wherein the housing can accommodate a fixture having multiple LEDs thereon.

3. (Amended) A system as set forth in claim 1, wherein the housing is configured as an enclosed member to encompass at least the photosensor, so as to substantially block ambient light from reaching the photosensor.

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7. (Amended) A calibration device comprising:

a support to which an LED to be calibrated may be positioned thereon;

a photosensor adjacent to the support for obtaining an output measurement from the light output generated by the LED; and

a communication mechanism through which the output measurement from the photosensor is communicated to a processor, which processor formulates a calibration value based on a comparison of the output measurement and a reference value, and through which the calibration value from the processor is communicated to the LED;

wherein the LED includes a memory mechanism on which the calibration value communicated from the processor is stored.

16. (Amended) A calibration device comprising:

a housing;

an activation unit for inducing light output from an LED to be calibrated;

a photosensor at one end of the housing for obtaining an output measurement from the light output generated by the LED; and

a communication mechanism in the housing through which the output measurement from the photosensor is communicated to a processor, which processor formulates a calibration value based on a comparison of the output measurement and a reference value, and through which the calibration value from the processor can be received by the device and subsequently communicated to the LED.

25. (Amended) An illumination device comprising:

a housing;

an LED illumination source positioned within the housing;

a photosensor within the housing and adjacent to the illumination source for obtaining an output measurement generated by the LED;

a processor within the housing and in communication with the photosensor for making a comparison of the output measurement received from the photosensor and a reference value and formulating a calibration value based on the comparison; and

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a memory mechanism coupled to the LED illumination source and on which the resulting calibration value from the processor is stored.

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30. (Amended) A method for calibrating light output by a light-emitting diode (LED), the method comprising acts of:

a) generating light output from the LED in a substantial absence of ambient light;

b) obtaining an output measurement for the light output generated by the LED;

c) comparing the output measurement to a reference value; and

d) formulating a calibration value based on the act c), such that during a subsequent generation of light output, the calibration value permits the subsequent light output to have a calibrated intensity.

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31. (Amended) A method as set forth in claim 30, further including storing the calibration value.

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34. (Amended) A method as set forth in claim 33, wherein the step of formulating includes scaling the light output, such that the relative value approximates the reference value to permit generation of uniform light output by the LED.

Please add claims 38-95 as follows:

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38. (New) A lighting device to generate light having a single calibrated color at a given time formed by mixing a first color and at least one second color different from the first color, the single calibrated color having an intensity sufficient to significantly illuminate a space, the lighting device comprising:

at least one first light source adapted to output first radiation having the first color and a first intensity sufficient to significantly illuminate the space;

at least one second light source adapted to output second radiation having the second color and a second intensity sufficient to significantly illuminate the space; and

a processor to receive at least first and second lighting commands, the processor configured to control the at least one first light source so as to output the first radiation at a first calibrated intensity that substantially corresponds in a predetermined manner to the first lighting command, the processor further configured to control the at least one second light source so as to output the second radiation at a second calibrated intensity that substantially corresponds in a predetermined manner to the second lighting command,

wherein the at least one first light source and the at least one second light source are arranged with respect to each other so as to mix the first and second radiation having the respective first and second calibrated intensities to produce the single calibrated color at the given time.

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39. (New) The lighting device of claim 38, wherein the at least one first light source includes a first plurality of light emitting diodes (LEDs).

40. (New) The lighting device of claim 39, wherein the at least one second light source includes a second plurality of light emitting diodes (LEDs).

41. (New) The lighting device of claim 38, wherein the at least first and second lighting commands are provided to the processor such that the single calibrated color produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

42. (New) The lighting device of claim 41, wherein at least one of the at least one first light source and the at least one second light source includes a plurality of LEDs.

43. (New) The lighting device of claim 38, further comprising an at least partially transparent housing that at least partially encloses the at least one first light source and the at least one second light source so as to mix the first and second radiation.

44. (New) The lighting device of claim 43, further comprising at least one photosensor disposed in the housing and coupled to the processor, the at least one photosensor adapted to measure at least one of the first radiation and the second radiation.

45. (New) The lighting device of claim 38, wherein the processor is configured to:

apply at least one first calibration value to the first lighting command to control the at least one first light source to output the first calibrated intensity; and

apply at least one second calibration value to the second lighting command to control the at least one second light source to output the second calibrated intensity.

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46. (New) The lighting device of claim 45, further comprising at least one memory to store at least the at least one first calibration value and the at least one second calibration value.

47. (New) The lighting device of claim 46, wherein the at least one memory includes:

a first memory integrated with the at least one first light source, the first memory storing the at least one first calibration value; and

a second memory integrated with the at least one second light source, the second memory storing the at least one second calibration value.

48. (New) The lighting device of claim 45, further comprising at least one photosensor coupled to the processor, the at least one photosensor adapted to measure the first radiation and the second radiation, wherein the processor is configured to:

determine the at least one first calibration value by comparing the measured first radiation to at least one first reference value; and

determine the at least one second calibration value by comparing the measured second radiation to at least one second reference value.

49. (New) The lighting device of claim 48, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

50. (New) The lighting device of claim 48, wherein the at least first and second lighting commands are provided to the processor such that the single calibrated color produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

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51. (New) The lighting device of claim 50, wherein at least one of the at least one first light source and the at least one second light source includes a plurality of LEDs.

52. (New) The lighting device of claim 51, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

53. (New) The lighting device of claim 38, wherein the first lighting command includes a first reference signal, and wherein the processor is configured to determine at least one first calibration value for the at least one first light source such that the at least one first light source outputs the first radiation at a first reference intensity when the first lighting command is the first reference signal.

54. (New) The lighting device of claim 53, further comprising at least one photosensor coupled to the processor, the at least one photosensor adapted to measure at least the first radiation, wherein the processor is configured to determine the at least one first calibration value by:

applying the first reference signal to the at least one first light source;

monitoring the measured first radiation from the at least one photosensor;

making a comparison of the measured first radiation and at least one first reference value; and

determining the at least one first calibration value based on the comparison.

55. (New) The lighting device of claim 54, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

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56. (New) The lighting device of claim 53, further comprising at least one memory to store at least the at least one first calibration value.

57. (New) The lighting device of claim 53, wherein the processor is configured to apply the at least one first calibration value to at least one subsequent first lighting command to control the at least one first light source to output the first calibrated intensity.

58. (New) The lighting device of claim 57, wherein the second lighting command includes a second reference signal, and wherein the processor is configured to determine at least one second calibration value for the at least one second light source such that the at least one second light source outputs the second radiation at a second reference intensity when the second lighting command is the second reference signal.

59. (New) The lighting device of claim 58, further comprising at least one photosensor coupled to the processor, the at least one photosensor adapted to measure at least the second radiation, wherein the processor is configured to determine the at least one second calibration value by:

applying the second reference signal to the at least one second light source;

monitoring the measured second radiation from the at least one photosensor;

making a comparison of the measured second radiation and at least one second reference value; and

determining the at least one second calibration value based on the comparison.

60. (New) The lighting device of claim 59, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

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61. (New) The lighting device of claim 58, further comprising at least one memory to store at least the at least one first calibration value and the at least one second calibration value.

62. (New) The lighting device of claim 58, wherein the processor is configured to apply the at least one second calibration value to at least one subsequent second lighting command to control the at least one second light source to output the second calibrated intensity.

63. (New) The lighting device of claim 58, wherein the at least first and second lighting commands are provided to the processor such that the single calibrated color produced by mixing the first and second radiation having the respective first and second calibrated intensities is a calibrated substantially white color.

64. (New) The lighting device of claim 63, wherein at least one of the at least one first light source and the at least one second light source includes a plurality of LEDs.

65. (New) The lighting device of claim 64, further comprising a housing to enclose at least the at least one photosensor, the at least one first light source, and the at least one second light source.

66. (New) A lighting method to generate light having a single calibrated color at a given time, the single calibrated color having an intensity sufficient to significantly illuminate a space, the lighting method comprising acts of:

a) generating first radiation in response to a first lighting command, the first radiation having a first color and a first intensity sufficient to significantly illuminate the space;

b) generating second radiation in response to a second lighting command, the second radiation having a second color different from the first color and a second intensity sufficient to significantly illuminate the space;

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c) processing the first lighting command such that the generated first radiation has a first calibrated intensity that substantially corresponds in a predetermined manner to the first lighting command;

d) processing the second lighting command such that the generated second radiation has a second calibrated intensity that substantially corresponds in a predetermined manner to the second lighting command; and

e) mixing the first and second radiation having the respective first and second calibrated intensities to produce the single calibrated color at the given time.

67. (New) The lighting method of claim 66, wherein:

the act a) includes an act of generating the first radiation via a first plurality of light emitting diodes (LEDs).

68. (New) The lighting method of claim 67, wherein:

the act b) includes an act of generating the second radiation via a second plurality of light emitting diodes (LEDs).

69. (New) The lighting method of claim 66, further comprising an act of:

providing the at least first and second lighting commands such that the single calibrated color produced in the act e) is a calibrated substantially white color.

70. (New) The lighting method of claim 69, wherein at least one of the acts a) and b) includes an act of generating radiation via a plurality of LEDs.

71. (New) The lighting method of claim 66, further comprising an act of:

passing the first and second radiation through an at least partially transparent material so as to mix the first and second radiation.

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72. (New) The lighting method of claim 66, wherein:

the act c) includes an act of applying at least one first calibration value to the first lighting command to provide the first calibrated intensity; and

the act d) includes an act of applying at least one second calibration value to the second lighting command to provide the second calibrated intensity.

73. (New) The lighting method of claim 72, further comprising an act of:

storing at least the at least one first calibration value and the at least one second calibration value in at least one memory.

74. (New) The lighting method of claim 72, further comprising acts of:

measuring the first radiation and the second radiation;

determining the at least one first calibration value by comparing the measured first radiation to at least one first reference value; and

determining the at least one second calibration value by comparing the measured second radiation to at least one second reference value.

75. (New) The lighting method of claim 74, further comprising an act of:

providing the at least first and second lighting commands such that the single calibrated color produced in the act e) is a calibrated substantially white color.

76. (New) The lighting method of claim 75, wherein at least one of the acts a) and b) includes an act of generating radiation via a plurality of LEDs.

77. (New) The lighting method of claim 66, wherein the first lighting command includes a first reference signal, and wherein the act c) includes an act of:

c1) determining at least one first calibration value such that the first radiation is generated at a first reference intensity when the first lighting command is the first reference signal.

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78. (New) The lighting method of claim 77, wherein the act c1) includes acts of:

asserting the first reference signal;

measuring the first radiation generated in response to the first reference signal;

making a comparison of the measured first radiation and at least one first reference value; and

determining the at least one first calibration value based on the comparison.

79. (New) The lighting method of claim 77, further comprising an act of:

storing at least the at least one first calibration value in at least one memory.

80. (New) The lighting method of claim 77, wherein the act c) further includes an act of:

c2) applying the at least one first calibration value to at least one subsequent first lighting command to provide the first calibrated intensity.

81. (New) The lighting method of claim 80, wherein the second lighting command includes a second reference signal, and wherein the act d) includes an act of:

d1) determining at least one second calibration value such that the second radiation is generated at a second reference intensity when the second lighting command is the second reference signal.

82. (New) The lighting method of claim 81, wherein the act d1) includes acts of:

asserting the second reference signal;

measuring the second radiation generated in response to the second reference signal;

making a comparison of the measured second radiation and at least one second reference value; and

determining the at least one second calibration value based on the comparison.

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83. (New) The lighting method of claim 81, further comprising an act of:

storing at least the at least one second calibration value in at least one memory.

84. (New) The lighting method of claim 81, wherein the act d) further includes an act of:

d2) applying the at least one second calibration value to at least one subsequent second lighting command to provide the second calibrated intensity.

85. (New) The lighting method of claim 84, further comprising an act of:

providing the at least first and second lighting commands such that the single calibrated color produced in the act e) is a calibrated substantially white color.

86. (New) The lighting method of claim 85, wherein at least one of the acts a) and b) includes an act of generating radiation via a plurality of LEDs.

87. (New) A lighting device, comprising:

a plurality of high-intensity LEDs adapted to generate an additive mixture of colored light to illuminate a space; and

calibration means for adjusting the light output of at least some LEDs of the plurality of high-intensity LEDs such that the additive mixture of colored light has a calibrated color.

88. (New) The lighting device of claim 87, wherein the additive mixture of colored light is a substantially white light, and wherein the calibration means is configured to adjust the

light output of at least some LEDs of the plurality of high-intensity LEDs such that the additive mixture of colored light has a calibrated substantially white color.

89. (New) The lighting device of claim 87, wherein the calibration means includes means for compensating for perceptible differences in light output between similar lighting devices.

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90. (New) The lighting device of claim 87, wherein the calibration means includes means for scaling the light output of at least some LEDs of the plurality of high-intensity LEDs so as to produce the calibrated color.

91. (New) The lighting device of claim 87, wherein the calibration means includes means for adjusting commands sent to at least some LEDs of the plurality of high-intensity LEDs so as to produce the calibrated color.

92. (New) The lighting device of claim 91, wherein the means for adjusting commands includes means for applying at least one calibration value to at least one command sent to at least some LEDs of the plurality of high-intensity LEDs.

93. (New) The lighting device of claim 92, further comprising means for storing the at least one calibration value.

94. (New) The lighting device of claim 91, wherein the calibration means includes:

first means for determining at least one calibration value; and

second means for applying the at least one calibration value to at least one command sent to at least some LEDs of the plurality of high-intensity LEDs.

95. (New) The lighting device of claim 94, wherein the first means includes:

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means for measuring the light output from at least some LEDs of the plurality of high-intensity LEDs;

means for comparing the measured light output to at least one reference value.

96. (New) The lighting device of claim 95, further comprising means for storing the at least one calibration value.